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Letter to the Editors

Choice of first antihypertensive – comparison
between the Irish and Dutch setting

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Okechukwu *et al.* recently presented an interesting paper in this journal on antihypertensive prescription behaviour in an Irish population [1]. The British Hypertension Society recommends the use of ACE inhibitors, angiotensin II receptor antagonists or β -adrenoceptor blockers (A or B) for those under the age of 55 years, and calcium channel blockers or diuretics (C or D) for those 55 years and older [2]. Okechukwu *et al.* conclude that the choice of first-line antihypertensives is generally in line with these guidelines, but mainly for those under the age of 55 years [1]. In this letter, besides some comments, we compare these results with the Dutch setting.

Okechukwu *et al.* presented their data in a very straightforward manner, allowing us to reproduce the authors' results. Data were presented as the numbers of patients and percentages. However in our opinion, reporting percentages for male and female patients as fractions of the total number of patients leads to an underestimation of the true percentage values (for recalculated percentage values, see Appendix). A more crucial mistake was made on the gender specific analyses. When Okechukwu *et al.* reported on the likelihood to receive recommended therapy for 'young males vs. old males', they in fact presented an odds ratio (OR) for young males vs. young females. Similarly, the authors reported on the likelihood to receive recommended therapy for 'old females vs. young females', while the presented OR was in fact for old females vs. old males. It should be noted that we were able to confirm all other likelihood ratios and 95% confidence intervals presented by the authors.

Dutch and British guidelines are not identical yet share similarities. The Dutch General Practitioners Association (NHG) recommends diuretics for the elderly [3]. Similarly, the Bureau for Health insurances (CVZ) recommends diuretics or calcium channel blockers for patients 60 years and older [4]. No specific recommendations for young patients are given in the Netherlands. In the literature, diuretics and calcium channel blockers have been proven to be effective in older hypertensive patients [5, 6]. While diabetes is no longer considered a contraindication for the

prescription of β -adrenoceptor blockers [7], ACE inhibitors are often considered drugs of first choice because of their renal protective effects [8].

To compare Irish and Dutch prescription behaviour on antihypertensive treatment, we used data from the population-based IADB, which holds prescription records of approximately 500 000 people in the Netherlands (<http://www.IADB.nl>). Our methods were identical to those used by Okechukwu *et al.* [1]. In short, we selected all individuals older than 25 years of age receiving their first antihypertensive monotherapy, excluding those receiving medication indicating heart disease, and identified diabetic patients by prescription of insulin or oral hypoglycaemic therapy. Our only alteration from the methods of Okechukwu *et al.* was a longer timeframe (between January 2005 and December 2006) to increase statistical power. However when the timeframe was restricted to the length used by Okechukwu *et al.* (between January 2005 and December 2005), results were similar. Statistical analyses were performed using Microsoft® Office Excel 2003. The data are shown in Table 1.

Young (<55 years) Dutch patients were more likely to receive antihypertensive therapy A or B (10.3% or 53.9%) than older Dutch patients were to receive C or D (4.9% or 44.1%), OR 1.86, 95% CI 1.73, 1.99. This OR is higher than found in the Irish setting (OR 1.31, 95% CI 1.26, 1.37) [1]. Similar to the Irish setting, young males vs. young females were more likely to receive antihypertensive therapy A or B, although this reached only borderline significance (OR 1.11, 95% CI 1.00, 1.23). Also similar to the Irish setting, old females vs. old males were more likely to receive recommended therapy C or D (OR 1.28, 95% CI 1.17, 1.41). Finally, Dutch patients receiving antidiabetic therapy were more likely than nondiabetic patients to be prescribed an antihypertensive drug other than β -adrenoceptor blockers (OR 4.16, 95% CI 3.58, 4.83), even more so than in the Irish setting (OR 2.97, 95% CI 2.74, 3.21) [1].

A possible explanation for the high agreement between prescription patterns with guidelines and literature in the Netherlands can be found in the fact that GPs

Table 1

Dutch setting: choice of first antihypertensives by age and diabetes (expressed as percentage of gender specific age group or diabetes)

Drug class		Group without cardiovascular comorbidities and diabetes		
		Under 55 years (n = 6144)	55 years or over (n = 6995)	Sub-group receiving antidiabetic therapy (n = 1376)
ACE inhibitor/angiotensin receptor blockers (A)	T	632 (10.3%)	1155 (16.5%)	531 (38.6%)
	M	362 (14.4%)	633 (20.2%)	304 (42.6%)
	F	270 (7.4%)	522 (13.5%)	227 (34.3%)
β-adrenoceptor blockers (B)	T	3309 (53.9%)	2410 (34.5%)	215 (15.6%)
	M	1282 (51.1%)	1073 (34.2%)	111 (15.5%)
	F	2027 (55.8%)	1337 (34.6%)	104 (15.7%)
Calcium channel blockers (C)	T	342 (5.6%)	345 (4.9%)	39 (2.8%)
	M	149 (5.9%)	170 (5.4%)	22 (3.1%)
	F	193 (5.3%)	175 (4.5%)	17 (2.6%)
Diuretics (D)	T	1861 (30.3%)	3085 (44.1%)	591 (43.0%)
	M	716 (28.5%)	1260 (40.2%)	277 (38.8%)
	F	1145 (31.5%)	1825 (47.3%)	314 (47.4%)

and pharmacists have pharmacotherapy audit meetings (PTAMs), in which prescription behaviour is discussed and analyzed. High quality PTAMs have been found to improve rational pharmacotherapy [9]. Our report that Dutch and Irish prescribing patterns are similar, although guidelines

are not, supports findings that prescription patterns are also influenced by other factors such as personal experience, foreign guidelines or studies supporting these guidelines [10].

Appendix: Table 1 from the paper of Okechukwu *et al.* [1] with recalculated percentage values as mentioned in this letter

Table A1

Irish setting: choice of first antihypertensives by age and diabetes (expressed as percentage of gender specific age group or diabetes)

Drug class		Group without cardiovascular comorbidities and diabetes		
		Under 55 years (n = 12 745)	55 years or over (n = 28 683)	Sub-group receiving antidiabetic therapy (n = 6966)
ACE inhibitor/angiotensin receptor blockers (A)	T	2863 (22.5%)	7718 (26.9%)	3253 (46.7%)
	M	1311 (28.4%)	3118 (29.0%)	1831 (50.2%)
	F	1552 (19.1%)	4600 (25.7%)	1422 (42.8%)
β-adrenoceptor blockers (B)	T	4589 (36.0%)	6116 (21.3%)	732 (10.5%)
	M	1604 (34.8%)	2313 (21.5%)	384 (10.5%)
	F	2985 (36.7%)	3803 (21.2%)	348 (10.5%)
Calcium channel blockers (C)	T	1942 (15.2%)	5469 (19.1%)	1197 (17.2%)
	M	825 (17.9%)	2143 (19.9%)	607 (16.7%)
	F	1117 (13.7%)	3326 (18.6%)	590 (17.8%)
Diuretics (D)	T	3351 (26.3%)	9380 (32.7%)	1784 (25.6%)
	M	871 (18.9%)	3188 (29.6%)	822 (22.6%)
	F	2480 (30.5%)	6192 (34.6%)	962 (29.0%)

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